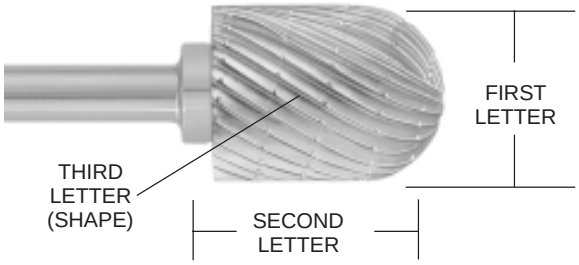
MIDGET MILL® IDENTIFICATION SYSTEM



Midget Mills are identified by a three-letter "tool number." The first and second letters specify cutting diameter and length. The third letter is the shape of the tool. In some cases, additional descriptive information is also part of the tool number . . . EC for End Cutting, 45 for a 45° angle, etc. All carbide tools carry the suffix, -W.

The First letter designates the largest diameter.
The Second letter designates the length of cutting portion. The Third letter designates the general shape as illustrated.

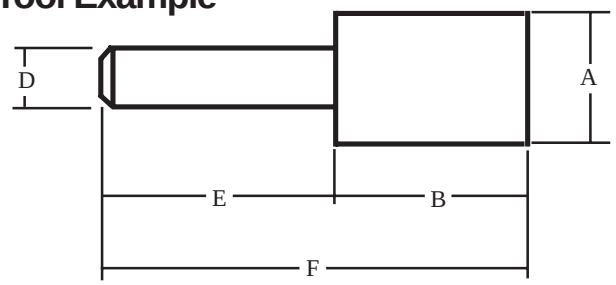
A-1/8"	G-1/2"	M-1-1/8"	S-2"	Y-4-1/2"
B-3/16"	H-9/16"	N-1-1/4"	T-2-1/4"	Z-5"
C-1/4"	I-5/8"	0-1-3/8"	U-2-1/2"	
D-5/16"	J-3/4"	P-1-1/2"	V-3"	
E-3/8"	K-7/8"	Q-1-5/8"	W-3-1/2"	
F-7/16"	L-1"	R-1-3/4"	X-4"	

TOOTH PATTERNS

Midget Mills and other Severance tools having similar teeth are available in any of the five tooth patterns illustrated. High speed steel tools are stocked in the standard chip breaker pattern. Carbide tools are stocked in the standard spiral pattern. The other patterns must be special ordered, and will be supplied promptly.

SPIRAL WITH CHIP BREAKER (standard for HSS) | SPIRAL (standard for carbide) | DOUBLE CUT | HERRINGBONE | RASP or DIAMOND

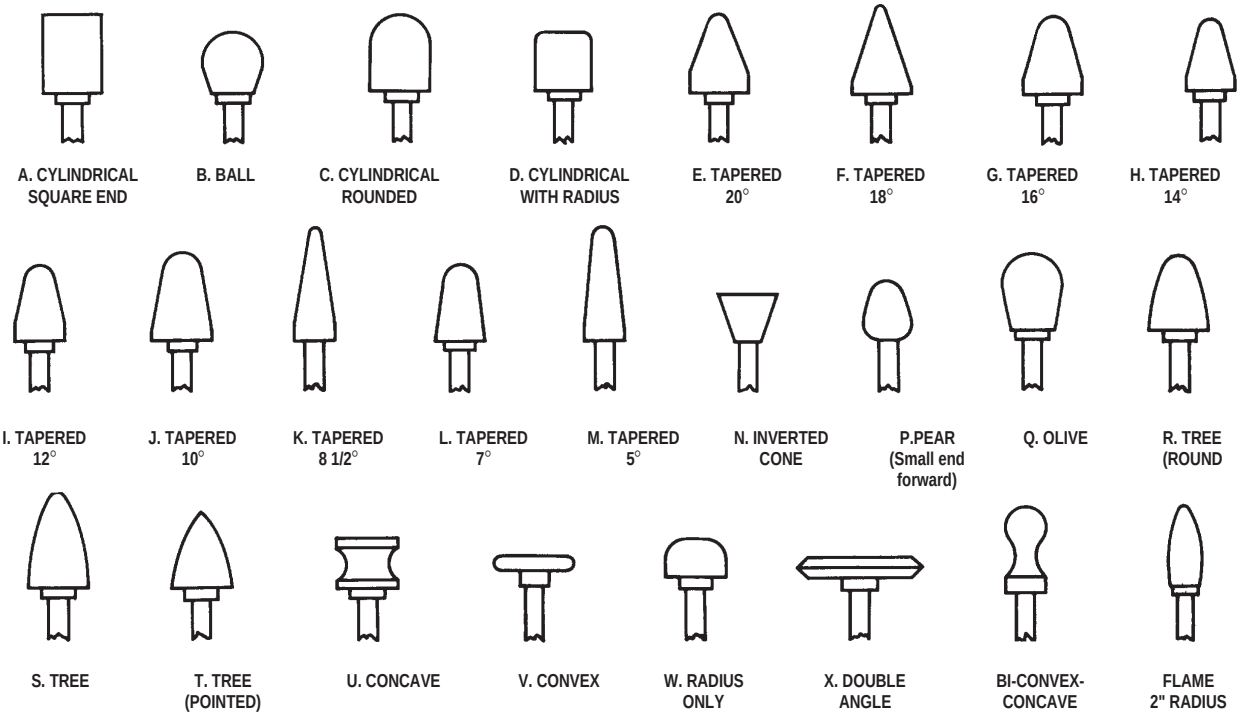
Tool Example



A: Diameter **B: Length of Cut** **C: Shape (See Below)**

D: Shank Diameter **E: Shank Length** **F: Over All Length**

STANDARD SHAPE DESIGNATIONS



A. CYLINDRICAL SQUARE END | B. BALL | C. CYLINDRICAL ROUNDED | D. CYLINDRICAL WITH RADIUS | E. TAPERED 20° | F. TAPERED 18° | G. TAPERED 16° | H. TAPERED 14°

I. TAPERED 12° | J. TAPERED 10° | K. TAPERED 8 1/2° | L. TAPERED 7° | M. TAPERED 5° | N. INVERTED CONE | P.PEAR (Small end forward) | Q. OLIVE | R. TREE (ROUND

S. TREE | T. TREE (POINTED) | U. CONCAVE | V. CONVEX | W. RADIUS ONLY | X. DOUBLE ANGLE | BI-CONVEX-CONCAVE | FLAME 2" RADIUS

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Grayhone™ Eliminating Break-In Period

Grayhone™, the no break-in tools, eliminate the need for a break-in period. Many manufacturers call for a "pre-honing" period from users for their conventional tools. The step consists of several slow-speed cuts to remove the burr on the tool's cutting edge. This requirement extends tool changeover down-time and slows the production process.

Grayhone tools, by contrast, are ready to operate at full production speeds right out of the package. This saves time and money in a full range of production operations. Severance utilizes an additional proprietary process in the production of Grayhone tools. After the tools are sharpened with a grinding wheel, they are also honed before shipment to users. This micro-honing process removes the burr while maintaining sharpness, surface integrity and finish.

TOOL MATERIALS

High Speed Steel Severance high speed steel cutting tools are made of select grades of molybdenum and tungsten alloy tool steels. Blanks are heat treated before final grinding to provide the optimum combination of properties for tough metal cutting applications. Hard cutting edges are backed up by a tough, fatigue-resistant body to give excellent performance under the most demanding service conditions.

Titanium Nitride Gold Tin-coated tools feature the same tough HSS bodies as the high speed steel line, but have a layer of superhard titanium nitride deposited on their surfaces,. These tools, available on special order, will outlast regular HSS cutters, under most conditions, by a factor of about 3 to 1. Tin-coated tools can sometimes be reground several times with out losing their surface hardness, if they are not too severely damaged before being returned for reconditioning.

Carbide Severance uses special grades of carbide which are formulated by custom suppliers and sintered at the Severance plant. Fine-grained materials have been developed and refined for toughness and strength. These custom grades have been selected because they hold a fine cutting edge which can be reground many times before the tool is used up. Carbide may be operated at many times the speed of steel tools and generally yields as much as five to ten times the service life.

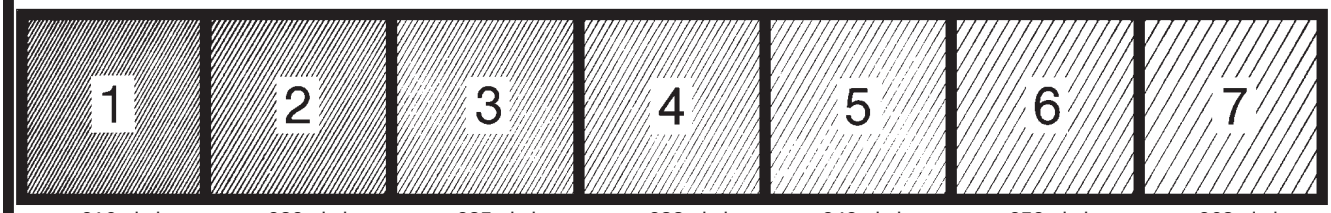
PITCHES and their CUT NUMBERS

The pitches of teeth ground on Severance Midget Mills® are illustrated below, in full scale. The chart at the right relates cut numbers to tool diameters for Fine, Standard, Coarse and Super Coarse pitches. Standard pitch will always be supplied unless otherwise specified. If an unlisted pitch is required, order by cut number.

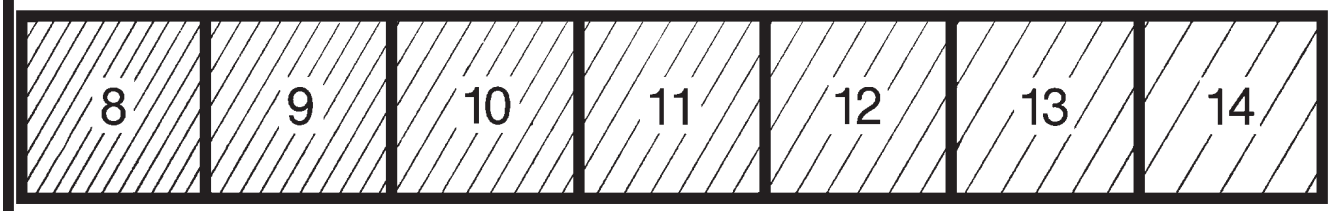
This cut numbering system applies to Severance Midget Mills, Junior Mills, Carbo-Mills, etc., and to hand files. Sever-Cut tools all have "super coarse" teeth .

*Super Coarse Cuts are recommended for use on aluminum and other non-ferrous materials for heavy, fast, stock removal.

Dia.	Fine	Std.	Coarse	Super Coarse*	Dia.	Fine	Std.	Coarse	Super Coarse*
	Cut #	Cut #	Cut #	(Teeth		Cut #	Cut #	Cut #	
3/32"	2	3	5	Per	9/16"	5	7	9	
1/8"	3	4	5	Tool)	5/8"	5	7	9	10
3/16"	3	5	6		3/4"	6	8	10	12
1/4"	4	5	7	4	7/8"	6	8	10	
5/16"	4	6	7		1"	6	8	10	16
3/8"	4	6	8	6	1-1/8"	6	9	11	
7/16"	5	6	8		1-1/4"	6	9	11	
1/2"	5	7	9	8	1-1/2"	7	9	12	



1	2	3	4	5	6	7
.016 pitch 62 teeth/in.	.020 pitch 50 teeth/in.	.025 pitch 40 teeth/in.	.032 pitch 31 teeth/in.	.040 pitch 25 teeth/in.	.050 pitch 20 teeth/in.	.062 pitch 16 teeth/in.



8	9	10	11	12	13	14
.076 pitch 13 teeth/in.	.092 pitch 11 teeth/in.	.111 pitch 9 teeth/in.	.125 pitch 8 teeth/in.	.143 pitch 7 teeth/in.	.166 pitch 6 teeth/in.	.200 pitch 5 teeth/in.

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NEW

d-burrs®

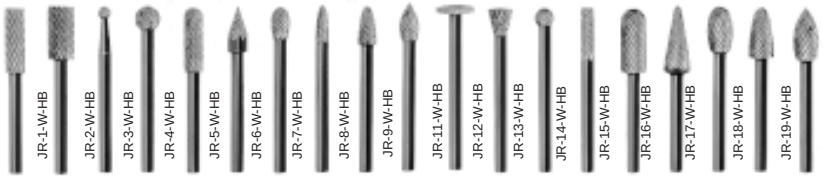
For Plastic Part Deburring

Carbide

1/4 Shank Diameters

D Burrs are designed for use on finishing plastic parts.
For use in smoothing and deburring on plastic edges.

HEAD DIA.*	CUTTING LENGTH	SHAPE	TOOTH STYLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	5/8"	Cyl. flat end	Extra Fine Herringbone Cut	CIA-W-HB	22150
1/2"	1"	Cyl. flat end	Extra Fine Herringbone Cut	GLA-W-HB	22149
1/4"	1/4"	Ball	Extra Fine Herringbone Cut	CCB-W-HB	22152
1/4"	5/8"	Cyl. ball nose	Extra Fine Herringbone Cut	CIC-W-HB	22158
1/2"	1"	Cyl. ball nose	Extra Fine Herringbone Cut	GLC-W-HB	22154
1/4"	3/8"	Taper, round nose	Extra Fine Herringbone Cut	CEH-W-HB	22155
1/4"	1/2"	Tree, round nose	Extra Fine Herringbone Cut	CGR-W-HB	22159
1/2"	1"	Tree, round nose	Extra Fine Herringbone Cut	GLR-W-HB	22157



NEW

Carbide

Junior d-burrs®

1/8" Shank Diameters
1-5/8" Overall Length

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDRICAL, PLAIN END			
1/8"	1/2"	JR-14-W-HB	22850
3/16"	5/8"	JR-1-W-HB	22851
1/4"	1/2"	JR-2-W-HB	22852
BALL			
1/8"	3/32"	JR-3-W-HB	22853
3/16"	11/64"	JR-13-W-HB	22854
1/4"	3/16"	JR-4-W-HB	22855
CYL.ROUND NOSE			
1/8"	1/2"	JR-23-W-HB	22856
3/16"	5/8"	JR-5-W-HB	22857
1/4"	1/2"	JR-15-W-HB	22858
OLIVE			
3/16"	3/8"	JR-7-W-HB	22859
1/4"	1/2"	JR-17-W-HB	22860
TREE, ROUND NOSE			
1/8"	5/16"	JR-8-W-HB	22861

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
TREE, ROUND NOSE (CONTINUED)			
3/16"	3/8"	JR-9-W-HB	22862
1/4"	1/2"	JR-18-W-HB	22863
FLAME			
1/8"	11/64"	JR-21-W-HB	22864
3/16"	3/8"	JR-10-W-HB	22865
1/4"	1/2"	JR-19-W-HB	22866
CONE, FORWARD ANGLE			
1/8"	13/32"	JR-22-W-HB	22867
3/16"	5/8"	JR-6-W-HB	22868
1/4"	1/2"	JR-16-W-HB	22869
INVERTED CONE			
1/4"	1/4"	JR-12-W-HB	22870
WHEEL, CYLINDRICAL, PLAIN END			
3/8"	3/64"	JR-11-W-HB	22871

For heavy, fast, stock removal of Aluminum
see Sever-Cuts™ on page 22.

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These tools were originated in 1931 by our founder, R.M. Severance. Today, throughout the industry, it is the standard, accepted, rotary cutting, burring and finishing tool.

MIDGET MILLS®
1/4" SHANK DIAMETER

CARBIDE
MIDGET MILLS®
SHAPE A

These mills have flat end faces and are most commonly used without end cut. Dimensions are in inches.

CYLINDRICAL, PLAIN NOSE, SHAPE “A”

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	1/2"	AGA-W	23280
1/8"	5/8"	AIA-W	23281
3/16"	1/2"	BGA-W	23282
3/16"	5/8"	BIA-W	23283
1/4"	1/2"	CGA-W	23284
1/4"	5/8"	CIA-W	23285
1/4"	3/4"	CJA-W	23286
1/4"	1"	CLA-W	23287
5/16"	3/4"	DJA-W	23288
5/16"	1"	DLA-W	23289
3/8"	3/4"	EJA-W	23290
3/8"	1"	ELA-W	23291
3/8"	1-1/2"	EPA-W	23292
7/16"	1"	FLA-W	23293
1/2"	1"	GLA-W	23294
5/8"	1"	ILA-W	23295
3/4"	1/2"	JGA-W	23296
3/4"	3/4"	JJA-W	23297
3/4"	1"	JLA-W	23298
1"	1"	LLA-W	23299

HSS Midget Mills have Chip Breaker tooth patterns. Carbide Midget Mills have Spiral flute teeth. (see page 7).

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE A

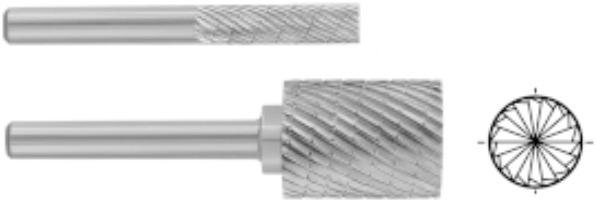
CYLINDRICAL, PLAIN END, SHAPE “A”

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	1/2"	AGA	22930
1/8"	3/4"	AJA	22931
1/8"	1"	ALA	22932
1/8"	1-1/4"	ANA	22933
1/8"	1-1/2"	APA	22934
3/16"	1/2"	BGA	22935
3/16"	3/4"	BJA	22936
3/16"	1"	BLA	22937
1/4"	1/2"	CGA	22938
1/4"	1"	CLA	22939
1/4"	1-1/2"	CPA	22940
1/4"	1-3/4"	CRA	22941
5/16"	1"	DLA	22942
3/8"	3/4"	EJA	22943
3/8"	1"	ELA	22944
3/8"	1-1/2"	EPA	22945
3/8"	2"	ESA	22946
7/16"	1"	FLA	22947
1/2"	1/2"	GGA	22948
1/2"	1"	GLA	22949
1/2"	1-1/4"	GNA	22950
1/2"	1-1/2"	GPA	22951
1/2"	2"	GSA	22952
5/8"	1"	ILA	22953
3/4"	1/2"	JGA	22954
3/4"	3/4"	JJA	22955
3/4"	1"	JLA	22956
3/4"	1-1/4"	JNA	22957
1"	1/4"	LCA	22958
1"	1"	LLA	22959

CARBIDE
MIDGET MILLS®
SHAPE A, END CUT

CYLINDRICAL, END CUTTING, SHAPE "A"

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	1/2"	AGA-EC-W	23300
1/8"	5/8"	AIA-EC-W	23301
3/16"	1/2"	BGA-EC-W	23302
3/16"	5/8"	BIA-EC-W	23303
1/4"	1/2"	CGA-EC-W	23304
1/4"	5/8"	CIA-EC-W	23305
1/4"	3/4"	CJA-EC-W	23306
1/4"	1"	CLA-EC-W	23307
5/16"	3/4"	DJA-EC-W	23308
5/16"	1"	DLA-EC-W	23309
3/8"	3/4"	EJA-EC-W	23310
3/8"	1"	ELA-EC-W	23311
3/8"	1-1/2"	EPA-EC-W	23312
7/16"	1"	FLA-EC-W	23313
1/2"	1"	GLA-EC-W	23314
5/8"	1"	ILA-EC-W	23315
3/4"	1/2"	JGA-EC-W	23316
3/4"	3/4"	JJA-EC-W	23317
3/4"	1"	JLA-EC-W	23318
1"	1"	LLA-EC-W	23319



HSS Midget Mills have Chip Breaker tooth patterns. Carbide Midget Mills have Spiral flute teeth. (see page 7).

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE A, END CUT

CYLINDRICAL, END CUTTING, SHAPE "A"

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	1/2"	AGA-EC	22960
1/8"	3/4"	AJA-EC	22961
1/8"	1"	ALA-EC	22962
1/8"	1-1/4"	ANA-EC	22963
1/8"	1-1/2"	APA-EC	22964
3/16"	1/2"	BGA-EC	22965
3/16"	3/4"	BJA-EC	22966
3/16"	1"	BLA-EC	22967
1/4"	1/2"	CGA-EC	22968
1/4"	1"	CLA-EC	22969
1/4"	1-1/2"	CPA-EC	22970
1/4"	1-3/4"	CRA-EC	22971
5/16"	1"	DLA-EC	22972
3/8"	3/4"	EJA-EC	22973
3/8"	1"	ELA-EC	22974
3/8"	1-1/2"	EPA-EC	22975
3/8"	2"	ESA-EC	22976
7/16"	1"	FLA-EC	22977
1/2"	1/2"	GGA-EC	22978
1/2"	1"	GLA-EC	22979
1/2"	1-1/4"	GNA-EC	22980
1/2"	1-1/2"	GPA-EC	22981
1/2"	2"	GSA-EC	22982
5/8"	1"	ILA-EC	22983
3/4"	1/2"	JGA-EC	22984
3/4"	3/4"	JJA-EC	22985
3/4"	1"	JLA-EC	22986
3/4"	1-1/4"	JNA-EC	22987
1"	1/4"	LCA-EC	22988
1"	1"	LLA-EC	22989

Severance Midget Mills can be successfully reground many times (see pages 90-92.)

CARBIDE
MIDGET MILLS®
SHAPE B

Radius on Ball Nose end is one-half of tool diameter blending into a 20° with C/L reverse angle on shank end of cutting head.

BALL, SHAPE "B"

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	3/32"	AAB-W	23320
3/16"	11/64"	BBB-W	23321
1/4"	3/16"	CCB-W	23322
5/16"	1/4"	DDB-W	23323
3/8"	5/16"	EEB-W	23324
7/16"	3/8"	FFB-W	23325
1/2"	7/16"	GGB-W	23326
5/8"	9/16"	IIB-W	23327
3/4"	11/16"	JJB-W	23328
1 "	15/16 "	LLB-W	23329

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE B

BALL, SHAPE "B"

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	3/32"	AAB	22990
3/16"	11/64"	BBB	22991
1 /4"	3/16"	CCB	22992
5/16"	1/4"	DDB	22993
3/8"	5/16"	EEB	22994
7/16"	3/8"	FFB	22995
1/2"	7/16"	GGB	22996
9/16"	1/2"	HHB	22997
5/8"	9/16"	IIB	22998
3/4"	11/16"	JJB	22999
7/8"	13/16"	KKB	23000
1"	15/16"	LLB	23001
1-1/4"	1-3/16"	NNB	23002

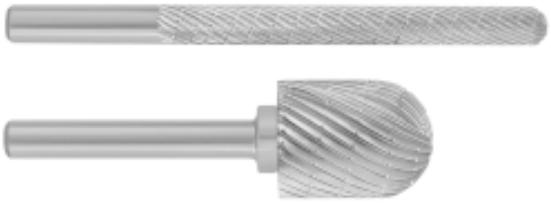
CARBIDE
MIDGET MILLS®
SHAPE C

Radius on end is one-half of tool diameter.

CYLINDRICAL, BALL NOSE, SHAPE "C"

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	1/2"	AGC-W	23330
1/8"	5/8"	AIC-W	23331
3/16"	5/8"	BIC-W	23332
1/4"	1/2"	CGC-W	23333
1/4"	5/8"	CIC-W	23334
1/4"	1"	CLC-W	23335
5/16"	3/4"	DJC-W	23336
5/16"	1"	DLC-W	23337
3/8"	3/4"	EJC-W	23338
3/8"	1"	ELC-W	23339
3/8"	1-1/2"	EPC-W	23340
7/16"	1"	FLC-W	23341
1/2"	1"	GLC-W	23342
5/8"	1"	ILC-W	23343
3/4"	1"	JLC-W	23344

HSS Midget Mills have Chip Breaker tooth patterns. Carbide Midget Mills have Spiral flute teeth. (see page 7).



HIGH SPEED STEEL
MIDGET MILLS®
SHAPE C

CYLIND. WITH FULL RADIUS END, SHAPE "C"

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	1/2"	AGC	23003
3/16"	1/2"	BGC	23004
1/4"	1"	CLC	23005
1/4"	1-1/2"	CPC	23006
1/4"	2-1/2"	CUC	23007
5/16"	1"	DLC	23008
3/8"	1"	ELC	23009
3/8"	1-1/2"	EPC	23010
7/16"	1"	FLC	23011
1/2"	1"	GLC	23012
1/2"	1-1/2"	GPC	23013
5/8"	1"	ILC	23014
3/4"	1"	JLC	23015
3/4"	1-1/4"	JNC	23016
3/4"	1-1/2"	JPC	23017
1"	1-3/8"	LOC	23018

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE D

Cylindrical Mills having any radius less than one-half the tool diameter. Radius is part of Tool No.

CYLIND. WITH CORNER RADIUS, SHAPE "D"

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	1/2"	GGD-1/32R	23019
1/2"	1/2"	GGD-1/16R	23020
1/2"	1/2"	GGD-3/32R	23021
1/2"	1/2"	GGD-1/8R	23022
3/4"	3/4"	JJD-1/16R	23023
3/4"	3/4"	JJD-1/8R	23024
3/4"	3/4"	JJD-3/16R	23025
3/4"	3/4"	JJD-1/4R	23026

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE E

20° CONE SHAPE "E"

Tapered mills having 20° angle with C/L.

CUTTING DIA.	HEAD LENGTH	NOSE POINT (P) OR RADIUS"	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	3/16"	P	ABE	23080
3/16"	3/16"	1/32"	BBE	23081
1/4"	5/16"	P	CDE	23082
3/8"	1/2"	P	EGE	23083
1/2"	3/8"	5/32"	GEE	23084
1/2"	1/2"	3/32"	GGE	23085
3/4"	3/4"	9/64"	JJE	23086

CARBIDE

MIDGET MILLS®
SHAPES F,H,J,L,M

Angles are: Shapes F–18°, H–14°, J–10°, L–7°, M–5° with C/L.

CONE, SHAPE “F”, “H”, “J”, “L”, “M”

HEAD DIA.	FLUTE LENGTH	INCLUDED ANGLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	3/8"	28°	CEH-W	23400
1/4"	1/2"	20°	CGJ-W	23401
1/4"	3/4"	14°	CJL-W	23402
1/4"	7/8"	10°	CKM-W	23403
1/4"	1-1/4"	10°	CNM-W	23404
5/16"	7/8"	14°	DKL-W	23405
3/8"	1"	14°	ELL-W	23406
3/8"	3/4"	28°	EJH-W	23407
1/2"	7/8"	28°	GKH-W	23408
1/2"	1-1/4"	14°	GNL-W	23409
5/8"	7/8"	36°	IKF-W	23410

HIGH SPEED STEEL

MIDGET MILLS®
SHAPE F

Tapered mills having 18° angle with C/L.

18° CONE SHAPE “F”

CUTTING DIA.	HEAD LENGTH	NOSE POINT (P) OR RADIUS"	SEVERANCE TOOL NAME	EDP ORDER NUMBER
5/16"	3/8"	3/64"	DEF	23087
3/8"	3/8"	5/64"	EEF	23088
3/8"	9/16"	P	EHF	23089
1/2"	7/16"	9/64"	GFF	23090
1/2"	5/8"	3/64"	GIF	23091
5/8"	3/4"	3/32"	IJF	23092
5/8"	7/8"	1/32"	IKF	23093
3/4"	7/8"	1/8"	JKF	23094
3/4"	1"	1/16"	JLF	23095
1"	1"	15/64"	LLF	23096
1"	1-3/8"	1/16"	LOF	23097

Remember that Severance Midget Mills may be obtained in various tooth patterns and the right pitch of teeth best suited for your job. See page 7 for various tooth patterns.

HIGH SPEED STEEL

MIDGET MILLS®
SHAPE G

Tapered mills having 16° angle with C/L.

16° CONE SHAPE “G”

CUTTING DIA.	HEAD LENGTH	NOSE POINT (P) OR RADIUS"	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	3/16"	P	ABG	23098
5/16"	3/8"	1/16"	DEG	23099
3/8"	7/16"	5/64"	EFG	23100
3/8"	5/8"	1/64"	EIG	23101
1/2"	1/2"	5/32"	GGG	23102
5/8"	3/4"	1/8"	IJG	23103
3/4"	3/4"	7/32"	JJG	23104

If you need sizes or shapes not listed here, send sketch, sample or other description and let us quote.

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE H

14° CONE SHAPE "H"

Tapered mills having 14° angle with C/L.

CUTTING DIA.	HEAD LENGTH	NOSE POINT (P) OR RADIUS"	SEVERANCE TOOL NAME	EDP ORDER NUMBER
3/16"	5/16"	P	BDH	23105
1/4"	1/2"	P	CGH	23107
5/16"	5/8"	P	DIH	23106
3/8"	1/2"	5/64"	EGH	23108
3/8"	3/4"	P	EJH	23109
1/2"	9/16"	9/64"	GHH	23110
1/2"	7/8"	1/32"	GKH	23111
5/8"	3/4"	5/32"	IJH	23112

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE I

12° CONE SHAPE "I"

Tapered mills having 12° angle with C/L.

CUTTING DIA.	HEAD LENGTH	NOSE POINT (P) OR RADIUS"	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	5/16"	1/16"	CDI	23113
3/8"	1/2"	3/32"	EGI	23114
3/8"	3/4"	1/32"	EJI	23115
1/2"	5/8"	9/64"	GII	23116
1/2"	1"	3/64"	GLI	23117
5/8"	3/4"	3/16"	IJI	23118
3/4"	9/16"	5/16"	JHI	23119

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE J

10° CONE SHAPE "J"

Tapered mills having 10° angle with C/L.

CUTTING DIA.	HEAD LENGTH	NOSE POINT (P) OR RADIUS"	SEVERANCE TOOL NAME	EDP ORDER NUMBER
3/16"	3/8"	1/32"	BEJ	23120
1/4"	5/16"	5/64"	CDJ	23121
1/4"	1/2"	3/64"	CGJ	23122
5/16"	3/4"	1/32"	DJJ	23123
3/8"	1/2"	1/8"	EGJ	23124
3/4"	5/8"	5/16"	JIJ	23125
3/4"	1"	7/32"	JLJ	23126
1"	3/4"	7/16"	LJJ	23128
1"	2-5/8"	1/16"	LUJ	23127

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Severance Midget Milling Cutters are available in High Speed Steel and Carbide. Ground from the solid after hardening. Available in a complete range of sizes and shapes.

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE K

8-1/2° CONE SHAPE "K"

Tapered mills having 8-1/2° angle with C/L.

CUTTING DIA.	HEAD LENGTH	NOSE POINT (P) OR RADIUS"	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	3/8"	P	AEK	23129
1/4"	3/8"	5/64"	CEK	23130
1/4"	5/8"	1/32"	CIK	23132
1/4"	3/4"	P	CJK	23131
5/16"	3/4"	3/64"	DJK	23133
3/8"	1"	3/64"	ELK	23134
1/2"	1-1/4"	1/16"	GNK	23135

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE L

7° CONE SHAPE "L"

Tapered mills having 7° angle with C/L.

CUTTING DIA.	HEAD LENGTH	NOSE POINT (P) OR RADIUS"	SEVERANCE TOOL NAME	EDP ORDER NUMBER
3/16"	5/8"	1/64"	BIL	23136
1/4"	3/4"	1/32"	CJL	23137
5/16"	3/4"	1/16"	DJL	23138
3/8"	1"	1/16"	ELL	23139
1/2"	1-1/4"	3/32"	GNL	23140
5/8"	3/4"	15/64"	IJL	23141
5/8"	7/8"	7/32"	IKL	23142

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE M

5° CONE SHAPE "M"

Tapered mills having 5° angle with C/L.

CUTTING DIA.	HEAD LENGTH	NOSE POINT (P) OR RADIUS"	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	1/2"	P	AGM	23143
3/16"	3/4"	1/32"	BJM	23144
1/4"	7/8"	3/64"	CKM	23145
1/4"	1-1/4"	1/64"	CNM	23146
3/8"	1"	7/64"	ELM	23147
3/8"	1-3/4"	1/32"	ERM	23148
1/2"	3/4"	13/64"	GJM	23149
1/2"	1"	5/32"	GLM	23150
1/2"	1-1/4"	5/32"	GNM	23151

HSS Midget Mills have Chip Breaker tooth patterns. Carbide Midget Mills have Spiral flute teeth. (see page 7).

CARBIDE
MIDGET MILLS®
SHAPE N

Mills having reverse angle ranging from 5° to 18° with C/L. Most commonly used without optional end cut.

INVERTED CONE, PLAIN END, SHAPE "N"

HEAD DIA.	FLUTE LENGTH	INCLUDED ANGLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	3/8"	20°	CEN-W	23411
3/8"	5/16"	20°	EDN-W	23412
1/2"	1/2"	16°	GGN-W	23413

HEAD DIA.	FLUTE LENGTH	INCLUDED ANGLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
5/8"	3/8"	36°	IEN-W	23414
3/4"	1/2"	36°	JGN-W	23415

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE N

INVERTED CONE, PLAIN END, SHAPE "N"

CUTTING DIA.	HEAD LENGTH	INCLUDED ANGLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	1/8"	36°	CAN	23152
1/4"	3/16"	28°	CBN	23153
1/4"	1/4"	20°	CCN	23154
1/4"	3/8"	14°	CEN	23155
1/4"	1/2"	10°	CGN	23156
3/8"	3/16"	36°	EBN	23157
3/8"	1/4"	28°	ECN	23158
3/8"	5/16"	20°	EDN	23159
3/8"	1/2"	10°	EGN	23160

CUTTING DIA.	HEAD LENGTH	INCLUDED ANGLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	3/8"	20°	GEN	23161
1/2"	1/2"	14°	GGN	23162
1/2"	1"	14°	GLN	23163
1/2"	1-1/8"	10°	GMN	23164
5/8"	3/8"	36°	IEN	23165
5/8"	1/2"	28°	IGN	23166
3/4"	1/2"	36°	JGN	23167
3/4"	5/8"	36°	JIN	23168

CARBIDE
MIDGET MILLS®
SHAPE N, END CUT

INVERTED CONE, END CUTTING, SHAPE "N"

HEAD DIA.	FLUTE LENGTH	INCLUDED ANGLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	3/8"	20°	CEN-W-EC	23416
3/8"	5/16"	20°	EDN-W-EC	23417
1/2"	1/2"	16°	GGN-W-EC	23418

HEAD DIA.	FLUTE LENGTH	INCLUDED ANGLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
5/8"	3/8"	36°	IEN-W-EC	23419
3/4"	1/2"	36°	JGN-W-EC	23420

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE N, END CUT

INVERTED CONE, END CUTTING, SHAPE "N"

CUTTING DIA.	HEAD LENGTH	INCLUDED ANGLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	1/8"	36°	CAN-EC	23169
1/4"	3/16"	28°	CBN-EC	23170
1/4"	1/4"	20°	CCN-EC	23171
1/4"	3/8"	14°	CEN-EC	23172
1/4"	1/2"	10°	CGN-EC	23173
3/8"	3/16"	36°	EBN-EC	23174
3/8"	1/4"	28°	ECN-EC	23175
3/8"	5/16"	20°	EDN-EC	23176
3/8"	1/2"	10°	EGN-EC	23177

CUTTING DIA.	HEAD LENGTH	INCLUDED ANGLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	3/8"	20°	GEN-EC	23178
1/2"	1/2"	14°	GGN-EC	23179
1/2"	1"	14°	GLN-EC	23180
1/2"	1-1/8"	10°	GMN-EC	23181
5/8"	3/8"	36°	IEN-EC	23182
5/8"	1/2"	28°	IGN-EC	23183
3/4"	1/2"	36°	JGN-EC	23184
3/4"	5/8"	36°	JIN-EC	23185

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE P

PEAR, SHAPE "P"

Pear-shape mills with small end forward.

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	5/16"	CDP	23027
5/16"	3/8"	DEP	23028
3/8"	7/16"	EFP	23029

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	5/8"	GIP	23030
5/8"	1"	ILP	23031

CARBIDE
MIDGET MILLS®
SHAPE Q

OLIVE, SHAPE "Q"

The very useful olive-shaped mills.

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
3/16"	5/16"	BDQ-W	23372
1/4"	3/8"	CEQ-W	23373
3/8"	5/8"	EIQ-W	23374

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	7/8"	GKQ-W	23375
5/8"	1"	ILQ-W	23376
3/4"	1"	JLQ-W	23377

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE Q

OLIVE, SHAPE "Q"

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
3/16"	5/16"	BDQ	23032
1/4"	7/16"	CFQ	23033
5/16"	1/2"	DGQ	23034
3/8"	5/8"	EIQ	23035
3/8"	3/4"	EJQ	23036

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	7/8"	GKQ	23037
5/8"	1"	ILQ	23038
3/4"	1"	JLQ	23039
1"	1-3/8"	LOQ	23040

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CARBIDE

MIDGET MILLS®

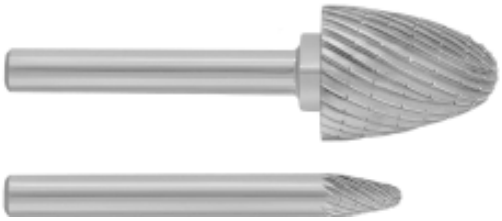
SHAPE R

Tree-shape mills with rounded noses.

TREE, RADIUS NOSE, SHAPE "R"

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	7/16"	AFR-W	23345
1/4"	1/2"	CGR-W	23346
1/4"	5/8"	CIR-W	23347
1/4"	3/4"	CJR-W	23348
3/8"	3/4"	EJR-W	23349
7/16"	1"	FLR-W	23350

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	3/4"	GJR-W	23351
1/2"	1"	GLR-W	23352
5/8"	1"	ILR-W	23353
3/4"	1"	JLR-W	23354
3/4"	1-1/4"	JNR-W	23355
3/4"	1-1/2"	JPR-W	23356



HIGH SPEED STEEL

MIDGET MILLS®

SHAPE R

TREE, ROUNDED, SHAPE "R"

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	7/16"	AFR	23041
3/16"	5/16"	BDR	23042
3/16"	1/2"	BGR	23043
1/4"	3/8"	CER	23044
1/4"	3/4"	CJR	23045
1/4"	1"	CLR	23046
3/8"	7/16"	EFR	23047
3/8"	3/4"	EJR	23048
3/8"	1"	ELR	23049
1/2"	3/4"	GJR	23078

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	1"	GLR	23050
1/2"	1-1/8"	GMR	23051
5/8"	5/8"	IIR	23052
5/8"	1-1/8"	IMR	23053
3/4"	3/4"	JJR	23054
3/4"	1"	JLR	23055
3/4"	1-1/4"	JNR	23056
3/4"	1-5/8"	JQR	23057
1-1/8"	1-3/4"	MRR	23058
1-1/4"	2"	NSR	23059

HIGH SPEED STEEL

MIDGET MILLS®

SHAPE S

Mills similar to shape "R" but having smaller rounded noses.

TREE, SMALL RAD. NOSE, SHAPE "S"

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	3/8"	AES	23060
3/16"	1/2"	BGS	23061
1/4"	3/4"	CJS	23062
3/8"	3/4"	EJS	23063
1/2"	1"	GLS	23064

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
5/8"	1-1/8"	IMS	23065
3/4"	1-1/4"	JNS	23066
1"	1-5/8"	LQS	23067
1-1/4"	2"	NSS	23068

Besides the wide variety of of shapes and sizes listed in this catalog and carried in stock for immediate delivery, Severance Tools are available in special sizes and shapes to fit your requirements or specifications.

CARBIDE

MIDGET MILLS®

SHAPE T

TREE, POINTED, SHAPE "T"

Tree-shape mills with pointed noses.

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	1/2"	CGT-W	23357
1/4"	5/8"	CIT-W	23358
1/4"	3/4"	CJT-W	23359
5/16"	3/4"	DJT-W	23360
3/8"	3/4"	EJT-W	23361

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	3/4"	GJT-W	23362
1/2"	1"	GLT-W	23363
5/8"	1"	ILT-W	23364
3/4"	1"	JLT-W	23365
3/4"	1-1/2"	JPT-W	23366

HIGH SPEED STEEL

MIDGET MILLS®

SHAPE T

TREE, POINTED, SHAPE "T"

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	1/2"	CGT	23069
1/4"	3/4"	CJT	23070
3/8"	5/8"	EIT	23071
3/8"	3/4"	EJT	23072
1/2"	3/4"	GJT	23073

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	1"	GLT	23074
1/2"	1-1/8"	GMT	23075
5/8"	1"	ILT	23076
3/4"	1"	JLT	23077

HSS Midget Mills have Chip Breaker tooth patterns. Carbide Midget Mills have Spiral flute teeth. (see page 7).

CARBIDE

MIDGET MILLS®

SHAPE U

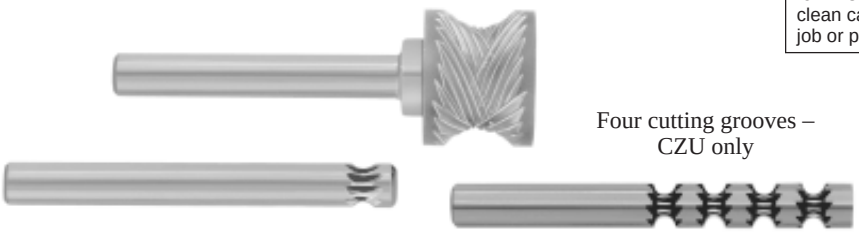
CONCAVE

Concave radius mills with cutting teeth on radius only.

HEAD DIA.	FLUTE LENGTH	RADIUS	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	1/4"	3/16"	GCU-W	23421
1/2"	5/16"	1/4"	GDU-W	23422

HEAD DIA.	FLUTE LENGTH	RADIUS	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	3/8"	5/16"	GEU-W	23423
1/2"	7/16"	3/8"	GFU-W	23424

The Midget Mill is efficient and practical for finishing up molds, smooth welds, clean castings, smooth plastic edges in job or production operations.



Four cutting grooves – CZU only

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE U

EDGE, ROUNDING, SHAPE "U"

CUTTING DIA.	HEAD LENGTH	RADIUS	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	1/8"	3/32"	CAU	23186
1/4"	3/16"	3/16"	CBU	23187
1/4"	1/8"	1/16"x4 PL.	CZU	23188
5/16"	3/16"	3/32"	DBU	23189
3/8"	1/8"	1/16"	EAU	23190
3/8"	3/16"	1/8"	EBU	23191
3/8"	1/4"	3/16"	ECU	23192
3/8"	5/16"	1/4"	EDU	23193
7/16"	1/4"	5/32"	FCU	23194
1/2"	1/4"	3/16"	GCU	23195

CUTTING DIA.	HEAD LENGTH	RADIUS	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	5/16"	1/4"	GDU	23196
1/2"	3/8"	5/16"	GEU	23197
1/2"	7/16"	3/8"	GFU	23198
5/8"	1/2"	7/16"	IGU	23199
3/4"	3/8"	1/4"	JEU	23200
3/4"	7/16"	5/16"	JFU	23201
3/4"	1/2"	3/8"	JGU	23202
3/4"	5/8"	1/2"	JIU	23203
7/8"	5/8"	7/16"	KIU	23204
7/8"	3/4"	5/8"	KJU	23205

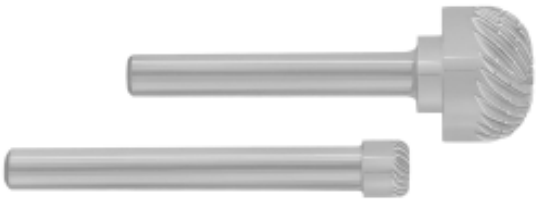
HIGH SPEED STEEL
MIDGET MILLS®
SHAPE V

These convex radius mills have cutting teeth on radius only.

CONVEX RADIUS, SHAPE "V"

CUTTING DIA.	HEAD LENGTH	RADIUS	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	3/8"	1/4"	CEV	23206
5/8"	7/16"	1/4"	IFV	23207
3/4"	1/2"	1/2"	JGV	23208

CUTTING DIA.	HEAD LENGTH	RADIUS	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1"	3/16"	3/32"	LBV	23209
1-1/4"	7/8"	5/8"	NKV	23210



HIGH SPEED STEEL
MIDGET MILLS®
SHAPE W

These mills have cutting teeth on their radius only. They feature an unfluted (safe) area at the center of the end face and on the straight cylindrical sides adjacent to the radius.

Useful for finishing fillets and many other similar applications.

CYLINDRICAL, END RADIUS ONLY, SHAPE "W"

CUTTING DIA.	HEAD LENGTH	RADIUS	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	1/8"	1/16"	CAW	23211
5/16"	1/4"	1/16"	DCW	23212
3/8"	5/16"	3/32"	EDW	23213

CUTTING DIA.	HEAD LENGTH	RADIUS	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/2"	3/8"	5/32"	GEW	23214
7/8"	1/2"	1/4"	KGW	23215
1"	1/2"	5/16"	LGW	23216

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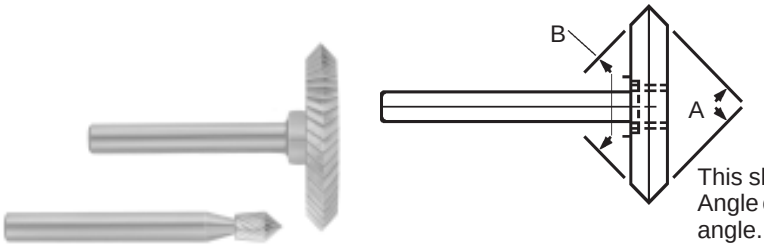


HIGH SPEED STEEL
MIDGET MILLS®
SHAPE X

This shape combines forward and reverse angles as listed in Angle column. Forward angle is given first, followed by reverse angle. Angles are given with Center Line. Special angles may be obtained at a nominal extra charge.

CONVEX RADIUS, SHAPE "X"

CUTTING DIA.	HEAD LENGTH	INCLUDED ANGLE A	INCLUDED ANGLE B	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	3/8"	80°	10°	CEX	23217
5/8"	5/8"	40°	20°	IIX	23218
3/4"	1/2"	120°	60°	JGX	23219
1"	3/4"	90°	30°	LJX	23220
1/4"	1/4"	20°	20°	CCX	23221
5/16"	1/4"	30°	30°	DCX	23222
3/8"	1/4"	60°	60°	ECX	23223
1/2"	1/4"	50°	50°	GCX	23224
5/8"	1/4"	60°	60°	ICX	23225
1"	1/4"	90°	90°	LCX	23226
1-1/2"	1/4"	60°	60°	PCX-30	23227
1-1/2"	1/4"	90°	90°	PCX-45	23228
1-1/2"	1/4"	120°	120°	PCX-60	23229

HIGH SPEED STEEL
MIDGET MILLS®
SHAPE BI

This shape combines a convex and a concave radius as listed in the Radii column. Forward radius is given first, followed by the concave radius nearest the shank. The third letter of the tool number indicates the shape of the nose.

CONVEX-CONCAVE, SHAPE "BI"

CUTTING DIA.	HEAD LENGTH	RADII	SEVERANCE TOOL NAME	EDP ORDER NUMBER
3/16"	5/8"	5/16"x1/2"	BIRU	23230
1/4"	3/4"	1-1/2"x1/2"	CJCU	23231
1/4"	1"	3/4"x3/4"	CLRU	23232
1/4"	1"	1"x1/2"	CLTU	23233
5/16"	1-1/8"	1"x1"	DMRU	23234
3/8"	1"	3/16"x1-1/4"	ELCU	23235
3/8"	1"	1/2"x3/4"	ELTU	23236
1/2"	7/8"	1/4"x3/8"	GKCU	23237

CARBIDE
MIDGET MILLS®
SHAPE FL

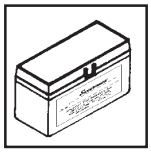
A very handy shape for blending operations.

FLAME, SHAPE "FL"

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	5/8"	CIFL-W	23367
5/16"	3/4"	DJFL-W	23368
1/2"	1-1/4"	GNFL-W	23369
5/8"	1-7/16"	IOFL-W	23370
3/4"	1-5/8"	JQFL-W	23371

HIGH SPEED STEEL
SET #77 / MIDGET MILLS®

MIDGET MILLS® Set No. 77 consists of the seven most popular Midget Mill shapes, all in 1/2-inch head diameter.



7 Piece set

SET #77	MIDGET MILLS®	ORDER NUMBER
		29677

TOOLS INCLUDED ARE:

GLA-EC	GLC	GIP	GJT
GGB	GKH	GLR	

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CARBIDE 8" LONG SHANK MIDGET MILLS®

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDRICAL, PLAIN NOSE			
1/4"	1"	CLA-Wx8	23780
3/8"	1"	ELA-Wx8	23781
1/2"	1"	GLA-Wx8	23782
CYLINDRICAL, END CUTTING			
1/4"	1"	CLA-EC-Wx8	23783
3/8"	1"	ELA-EC-Wx8	23784
1/2"	1"	GLA-EC-Wx8	23785
BALL			
1/4"	3/16"	CCB-Wx8	23786
3/8"	5/16"	EEB-Wx8	23787
1/2"	7/16"	GGB-Wx8	23788
CYLINDRICAL, BALL NOSE			
1/4"	1"	CLC-Wx8	23789
3/8"	1"	ELC-Wx8	23790
1/2"	1"	GLC-Wx8	23791
TREE, RADIUS N0SE			
1/4"	3/4"	CJR-Wx8	23792
3/8"	3/4"	EJR-Wx8	23793

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
TREE, RADIUS N0SE Continued			
1/2"	1"	GLR-Wx8	23794
TREE, POINTED			
1/4"	3/4"	CJT-Wx8	23795
3/8"	3/4"	EJT-Wx8	23796
1/2"	1"	GLT-Wx8	23797
FLAME			
5/16"	3/4"	DJFL-Wx8	23798
1/2"	1-1/4"	GNFL-Wx8	23799
OLIVE			
1/4"	7/16"	CFQ-Wx8	23800
3/8"	5/8"	EIQ-Wx8	23801
1/2"	7/8"	GKQ-Wx8	23802
CONE			
1/4"	1/2"	CGH-Wx8	23803
5/16"	3/4"	DJJ-Wx8	23804
3/8"	1"	ELL-Wx8	23805
1/2"	1"	GLH-Wx8	23806

HIGH SPEED STEEL 8" LONG SHANK MIDGET MILLS®

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDRICAL, PLAIN NOSE			
1/4"	1"	CLAx8	23730
3/8"	1"	ELAx8	23731
1/2"	1"	GLAx8	23732
CYLINDRICAL, END CUTTING			
1/4"	1"	CLA-ECx8	23733
3/8"	1"	ELA-ECx8	23734
1/2"	1"	GLA-ECx8	23735
BALL			
1/4"	3/16"	CCBx8	23736
3/8"	5/16"	EEBx8	23737
1/2"	7/16"	GGBx8	23738
CYLINDRICAL, BALL NOSE			
1/4"	1"	CLCx8	23739
3/8"	1"	ELCx8	23740
1/2"	1"	GLCx8	23741
TREE, RADIUS N0SE			
1/4"	3/4"	CJRx8	23742
3/8"	3/4"	EJRx8	23743

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
TREE, RADIUS N0SE continued			
1/2"	1"	GLRx8	23744
TREE, POINTED			
1/4"	3/4"	CJTx8	23745
3/8"	3/4"	EJTx8	23746
1/2"	1-1/8"	GMTx8	23747
FLAME			
5/16"	3/4"	DJFLx8	23748
1/2"	1-1/4"	GNFLx8	23749
OLIVE			
1/4"	7/16"	CFQx8	23750
3/8"	5/8"	EIQx8	23751
1/2"	7/8"	GKQx8	23752
CONE			
1/4"	1/2"	CGHx8	23753
5/16"	3/4"	DJJx8	23754
3/8"	1"	ELLx8	23755
1/2"	1"	GLHX8	23756

Sever-Cuts™

For Aluminum And Non-Ferrous Materials

Sever-Cut™ tools all have "super coarse" teeth.

Carbide

SUPER COARSE-CUT CARBIDE MIDGET MILLS

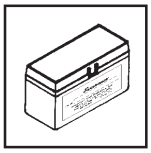
Ideal for use on aluminum for heavy, fast, stock removal – now blend, deburr, form, smooth and finish with speed that will "Sever Costs" on job after job. These Sever-Cuts are stocked, other shapes and sizes will be available on request.

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDER, PLAIN END			
1/4"	3/4"	CJA-W-4F	23680
3/8"	3/4"	EJA-W-6F	23681
1/2"	1"	GLA-W-8F	23682
5/8"	1"	ILA-W-8F	23683
3/4"	1"	JLA-W-8F	23684
BALL SHAPE			
1/4"	1/4"	CCB-W-4F	23685
3/8"	3/8"	EEB-W-6F	23686
1/2"	1/2"	GGB-W-8F	23687
5/8"	5/8"	IIB-W-8F	23688
3/4"	3/4"	JJB-W-8F	23689
CYLINDER, BALL NOSE			
1/4"	3/4"	CJC-W-4F	23690
3/8"	3/4"	EJC-W-6F	23691
1/2"	1"	GLC-W-8F	23692
5/8"	1"	ILC-W-8F	23693
3/4"	1"	JLC-W-8F	23694
OLIVE SHAPE			
3/8"	5/8"	EIQ-W-6F	23695

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
OLIVE SHAPE (CONTINUED)			
1/2"	7/8"	GKQ-W-8F	23696
5/8"	1"	ILQ-W-8F	23697
3/4"	1"	JLQ-W-8F	23698
TREE, RADIUS END			
1/4"	3/4"	CJR-W-4F	23699
3/8"	3/4"	EJR-W-6F	23700
1/2"	1"	GLR-W-8F	23701
5/8"	1"	ILR-W-8F	23702
5/8"	1-1/8"	IMR-W-8F	23703
3/4"	1-1/4"	JNR-W-8F	23704
7° TAPER- RADIUS END			
3/8"	1-1/16"	ELL-W-6F	23705
1/2"	1-1/8"	GML-W-8F	23706
5/8"	1-3/16"	INL-W-8F	23707
5/8"	1-5/16"	IOL-W-8F	23708
3/4"	1-1/2"	JPL-W-8F	23709
14° TAPER- RADIUS END			
1/2"	7/8"	GKH-W-8F	23710

Carbide

Set #14-W / Sever-Cuts™



10 Piece set

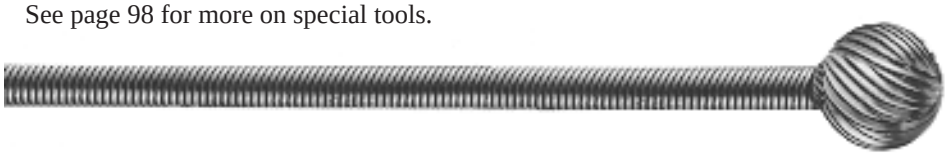
SET #14-W	SEVER-CUTS	ORDER NUMBER
		29574

TOOLS INCLUDED ARE:

CJA-W-4F	GLA-W-8F	EJC-W-6	GKH-W-8F	GLR-W-8F
EJA-W-6F	CJC-W-4F	GLC-W-8	EJR-W-6F	IMR-W-8F

Flex-Shank Midget Mills®

Many cases of puzzling, inside, blind, interrupted, winding, and around the corner; cleaning and deburring problems have been solved with severance FLEX-SHANK Midget Mills®. We would like to help you! Submit details - sample parts if feasible. See page 98 for more on special tools.



See related items, Page 30, 31

Carbide
Micro-Mills™

Micro-Mills are similar in application to the Bore Mills, but are used for finishing in the 6 to 8 microinch range. Micro-Mills should not be oscillated. Cut on the in-feed and burnish on the out-feed. Both Micro-Mills and Bore Mills will outlast grinding wheels, particularly on demanding operations such as chamfering and counter-boring.

HEAD DIA.	SHANK DIA.	OVERALL LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
.047	1/8"	1-1/2"	MW-4	21120
.065	1/8"	1-1/2"	MW-5	21130
.078	1/8"	1-1/2"	MW-6	21121
.096	1/8"	1-1/2"	MW-7	21131
.109	1/8"	1-1/2"	MW-8	21122
.127	1/8"	1-1/2"	MW-9	21132
.130	3/16"	2"	MW-10	21123
.158	3/16"	2"	MW-11	21133
.172	3/16"	2"	MW-12	21124
.190	3/16"	2"	MW-13	21134
.195	1/4"	2"	MW-14	21125
.219	1/4"	2"	MW-16	21126
.253	1/4"	2"	MW-18	21135
.281	1/4"	2"	MW-20	21127
.312	1/4"	2"	MW-22	21136
.344	1/4"	2"	MW-24	21128
.375	1/2"	2"	MW-28	21137
.469	1/4"	2"	MW-32	21129

Other sizes available on request.

NOTE! ALL MICRO-MILLS™ ARE COATED WITH TiN AT NO EXTRA CHARGE.

See related items, Page 30, 31

Carbide
Bore Mills

See related items – Pages 30, 31, 35.

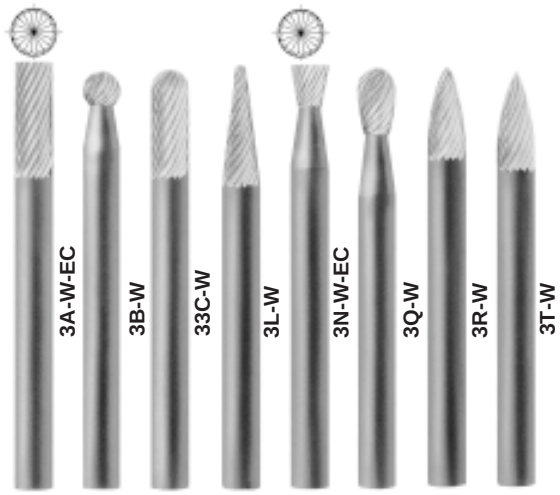
Severance Bore Mills are designed to be used in place of mounted grinding wheels in jig grinding applications. Their convex shape provides rapid stock removal on cast iron, steel, non-ferrous and many non-metallic materials. Bore mills are operated at the same speeds and feeds as grinding wheels and are capable of producing surface finishes in the 12 to 15 microinch range.

HEAD DIA.	SHANK DIA.	OVERALL LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
.047	1/8"	1-1/2"	BM-3-W	00250
.078	1/8"	1-1/2"	BM-5-W	00251
.109	1/8"	1-1/2"	BM-7-W	00252
.125	3/16"	2"	BM-8-W	00253
.172	3/16"	2"	BM-11-W	00254
.250	1/4"	2"	BM-16-W	00255
.312	5/16"	2"	BM-20-W	00256
.375	3/8"	2"	BM-24-W	00257
.500	1/2"	2"	BM-32-W	00258

Other sizes available on request

NOTE! ALL BORE MILLS ARE TiN COATED AT NO EXTRA CHARGE.

Carbo Mills all have Double Cut teeth for fast stock removal.



Carbide

Carbo-Mills™

3/32" Shank Diameters

All Carbo-Mills may be ordered individually or in the sets shown.

USES – Carbo-Mills cover a wide range of uses such as: removing gates, fins, and risers; breaking sharp corners and edges; machining carbon; finishing castings of any material; working fillets, radii, and grooves; deburring oil holes; blending welded and assembled parts; and removing weld beads. They are ideal for the production deburring and machining of parts made from materials that are abrasive or tough, or having hardness up to 60 "C" Rockwell. They are equally useful to maintenance men, and to tooling departments such as produce dies, molds and metal patterns.

1-1/2" O.A. Length, Solid Carbide

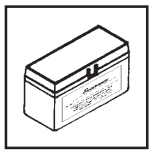
HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDRICAL, PLAIN NOSE			
1/16"	1/4"	3A2-W	22180
3/32"	3/8"	3A-W	22181
CYLINDRICAL, END CUTTING			
1/16"	1/4"	3A2-EC-W	22182
3/32"	3/8"	3A-EC-W	22183
BALL SHAPE			
1/16"	3/64"	3B2-W	22184
3/32"	5/64"	3B-W	22185
CYLINDRICAL, ROUND NOSE			
1/16"	1/4"	3C2-W	22186
3/32"	3/8"	3C-W	22187
OLIVE			
3/32"	1/8"	3Q-W	22188
TREE, RADIUS NOSE			
3/32"	5/16"	3R-W	22189
TREE, POINTED NOSE			
3/32"	3/8"	3T-W	22190

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CONE, RADIUS NOSE, 10° INCL.			
3/32"	1/4"	3M-W	22191
CONE, RADIUS NOSE,10° INCL.			
3/32"	3/16"	3M3-W	22192
CONE, POINTED NOSE, 7° INCL.			
3/32"	5/16"	3H-W	22193
CONE, POINTED NOSE,14° INCL.			
3/32"	1/4"	3L-W	22194
CONE, POINTED NOSE, 12° INCL.			
3/32"	1/4"	3J-W	22195
FLAME			
3/32"	1/8"	3GN-W	22196
INVERTED CONE, PLAIN END			
3/32"	1/8"	3N-W	22197
INVERTED CONE, END CUTTING			
3/32"	1/8"	3N-EC-W	22198

Carbide

SET #3-W / Carbo-Mills™

3/32" Shank Diameters



7 Piece set

SET #3-W	CARBO-MILLS	ORDER NUMBER	
		29570	
TOOLS INCLUDED ARE:			
3A-W	3C-W	3N-W	3T-W
3B-W	3L-W	3R-W	

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Carbo Mills all have Double Cut teeth for fast stock removal.

Carbide

Carbo-Mills™

1/8" Shank Diameters

1-1/2" O.A. Length, Solid Carbide

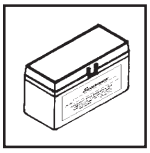
HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDRICAL, PLAIN NOSE			
3/32"	1/2"	4A3-W	22230
1/8"	9/16"	4A-W	22231
CYLINDRICAL, END CUTTING			
3/32"	1/2"	4A3-EC-W	22232
1/8"	9/16"	4A-EC-W	22233
BALL			
3/32"	5/64"	4B3-W	22234
1/8"	3/32"	4B-W	22235
CYLINDRICAL, ROUND NOSE			
3/32"	1/2"	4C3-W	22236
1/8"	9/16"	4C-W	22237
OLIVE			
1/8"	7/32"	4Q-W	22238
TREE, RADIUS NOSE			
1/8"	1/2"	4R-W	22239
TREE, POINTED NOSE			
1/8"	1/2"	4T-W	22240

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CONE, RADIUS NOSE, 10° INCL.			
1/8"	5/16"	4M-W	22241
3/32"	1/4"	4M3-W	22242
CONE, POINTED NOSE, 7° INCL.			
1/8"	1/2"	4H-W	22243
CONE, POINTED NOSE,14° INCL.			
1/8"	3/8"	4L-W	22244
CONE, POINTED NOSE, 12° INCL.			
1/8"	7/16"	4J-W	22245
FLAME			
1/8"	1/4"	4GN-W	22246
INVERTED CONE, PLAIN END			
1/8"	3/16"	4N-W	22247
INVERTED CONE, END CUTTING			
1/8"	3/16"	4N-EC-W	22248
INSIDE TAPER, DOUBLE END			
1/8"		4Y-W-DE	22249
INSIDE TAPER, DOUBLE END			
1/8"		4Z-W-DE	22250

Carbide

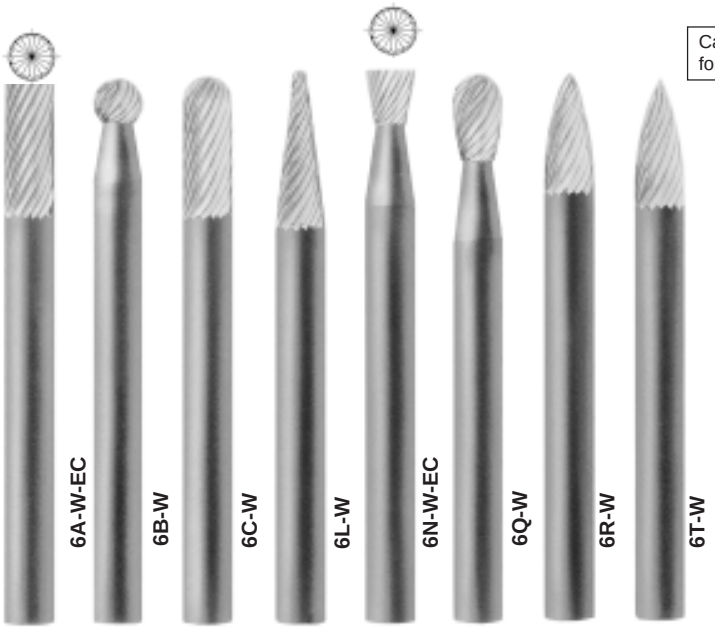
SET #4-W / Carbo-Mills™

1/8" Shank Diameter



12 Piece set

SET #4-W	CARBO-MILLS	ORDER NUMBER	
		29571	
TOOLS INCLUDED ARE:			
4A3-W	4C3-W	4N-W	4T-W
4A-W	4C-W	4Q-W	4Y-DE-W
4B-W	4L-W	4R-W	4Z-DE-W



Carbo Mills all have Double Cut teeth for fast stock removal.

Carbide

Carbo-Mills™

3/16" Shank Diameter

2" O.A. LENGTH, SOLID CARBIDE

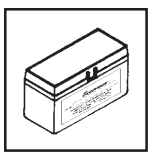
HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDRICAL, PLAIN NOSE			
1/8"	3/8"	6A4-W	22280
3/16"	1/2"	6A-W	22281
CYLINDRICAL, END CUTTING			
1/8"	3/8"	6A4-EC-W	22282
3/16"	1/2"	6A-EC-W	22283
BALL			
1/8"	3/32"	6B4-W	22284
3/16"	11/64"	6B-W	22285
CYLINDRICAL, ROUND NOSE			
1/8"	3/8"	6C4-W	22286
3/16"	1/2"	6C-W	22287
OLIVE			
3/16"	3/8"	6Q-W	22288
TREE, RADIUS NOSE			
3/16"	1/2"	6R-W	22289
TREE, POINTED NOSE			
3/16"	1/2"	6T-W	22290

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CONE, RADIUS NOSE, 10° INCL.			
3/16"	5/16"	6M-W	22291
CONE, RADIUS NOSE,10° INCL.			
3/16"	1/4"	6M4-W	22292
CONE, POINTED NOSE, 7° INCL.			
3/16"	1/2"	6H-W	22293
CONE, POINTED NOSE,14° INCL.			
3/16"	3/8"	6L-W	22294
CONE, POINTED NOSE, 12° INCL.			
3/16"	7/16"	6J-W	22295
FLAME			
3/16"	1/4"	6GN-W	22296
INVERTED CONE, PLAIN END			
3/16"	3/16"	6N-W	22297
INVERTED CONE, END CUTTING			
3/16"	3/16"	6N-EC-W	22298

Carbide

SET #6-W / Carbo-Mills™

3/16" Shank Diameters



8 Piece set

SET #6-W	CARBO-MILLS	ORDER NUMBER	
		29572	
TOOLS INCLUDED ARE:			
6A-W	6C-W	6N-W	6R-W
6B-W	6L-W	6Q-W	6T-W

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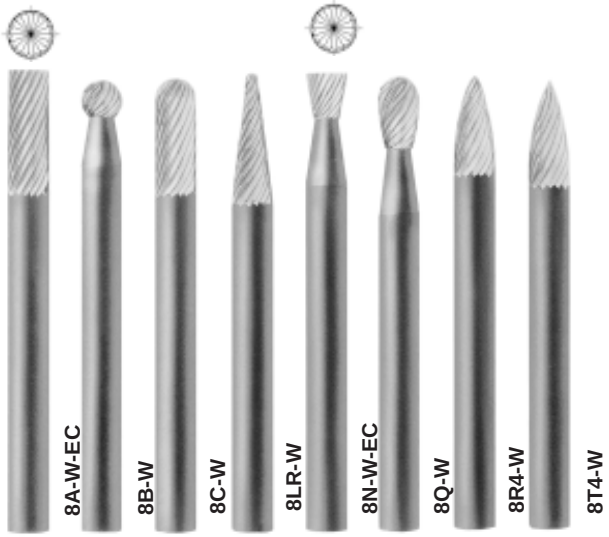


Carbo Mills all have Double Cut teeth for fast stock removal.

Solid Carbide

Carbo-Mills™

1/4" Shank Diameter

2" O.A. Length, Solid Carbide

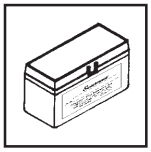
HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDRICAL. PLAIN NOSE			
1/8"	1/2"	8A4-W	22380
1/8"	5/8"	8AI4L-W	22381
5/32"	5/8"	8A5-W	22382
3/16"	5/8"	8A6-W	22383
1/4"	5/8"	8A-W	22384
1/4"	1"	8AL-W	22385
CYLINDRICAL, END CUTTING			
1/8"	1/2"	8A4-EC-W	22386
1/8"	5/8"	8AI4L-EC-W	22387
5/32"	5/8"	8A5-EC-W	22388
3/16"	5/8"	8A6-EC-W	22389
1/4"	5/8"	8A-EC-W	22390
1/4"	1"	8AL-EC-W	22391
BALL			
1/8"	3/32"	8B4-W	22392
3/16"	11/64"	8B6-W	22393
1/4"	3/16"	8B-W	22394
CYLINDRICAL, ROUND NOSE			
1/8"	1/2"	8C4-W	22395
1/8"	5/8"	8CI4L-W	22396
5/32"	5/8"	8C5-W	22413
3/16"	5/8"	8C6-W	22397
1/4"	5/8"	8C-W	22414
1/4"	1"	8LC-W	22398
OLIVE			
3/16"	5/16"	8Q6-W	22399
1/4"	3/8"	8Q-W	22400

HEAD DIA.	FLUTE LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
TREE, RADIUS NOSE			
1/8"	1/2"	8R4-W	22401
1/4"	5/8"	8R-W	22402
TREE. PLOINTED NOSE			
1/8"	1/2"	8T4-W	22403
1/4"	5/8"	8T-W	22404
CONE, POINTED NOSE, 28° INCL.			
1/4"	1/2"	8H-W	22405
CONE, POINTED NOSE,14° INCL.			
1/4"	3/8"	8PL-W	22406
CONE, POINTED NOSE, 10° INCL.			
1/4"	1"	8MP-W	22407
CONE, RADIUS NOSE, 14° INCL.			
1/4"	5/8"	8LR-W	22408
FLAME			
1/4"	5/8"	8GN-W	22415
INVERTED CONE, PLAIN END			
1/4"	3/16"	8N-W	22409
INVERTED CONE, END CUTTING			
1/4"	3/16"	8N-EC-W	22410
INSIDE TAPER, 60° INCL, DOUBLE END			
1/4"	30°	8Z-W-DE	22411
INSIDE TAPER, 90° INCL, DOUBLE END			
1/4"	45°	8Y-W-DE	22412

Solid Carbide

SET #8-W / Carbo-Mills™

1/4" Shank Diameters



10 Piece set

SET #8-W	CARBO-MILLS	ORDER NUMBER	
		29573	
TOOLS INCLUDED ARE:			
8A-W	8H-W	8R-W	8Y-DE-W
8B-W	8N-W	8T-W	8Z-DE-W
8C-W	8Q-W		

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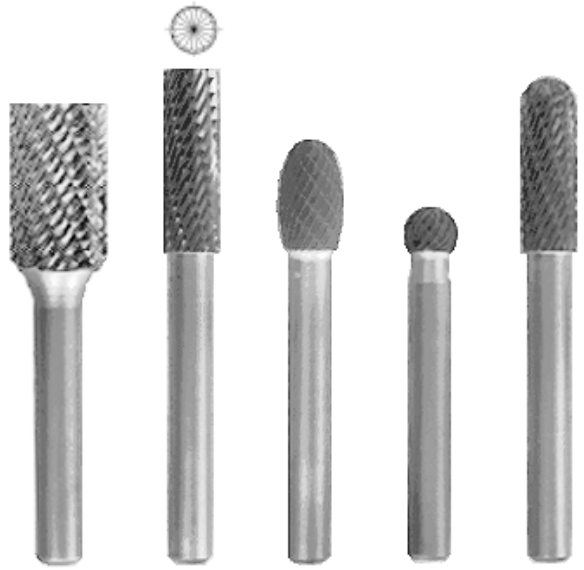


20A8-W-EC 10LA8-W 12Q8-W 10B8-W 10LC8-W

Carbo Mills all have Double Cut teeth for fast stock removal.

Carbide

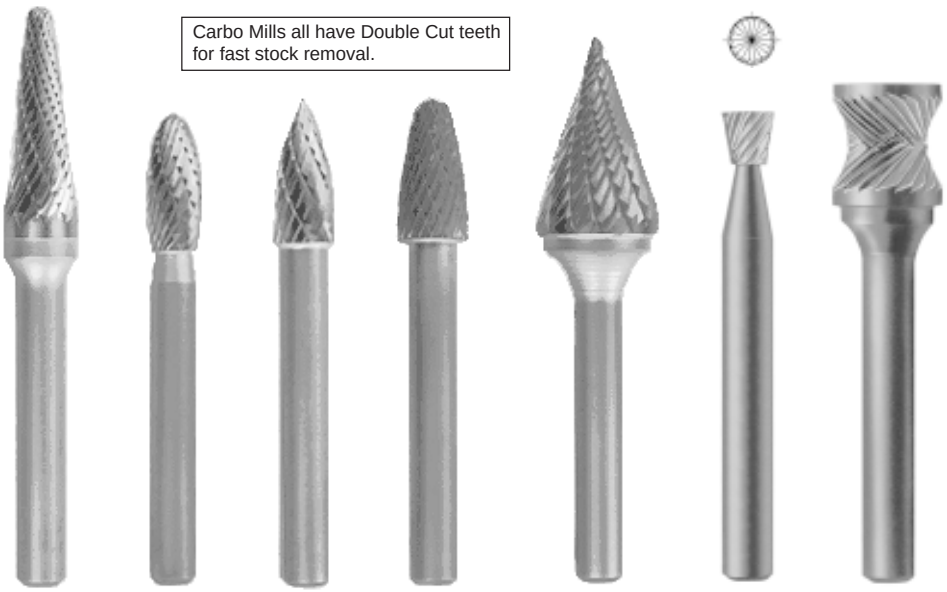
Carbo-Mills™

1/4" Hardened Steel Shanks

HEAD DIA.	FLUTE LENGTH	OVERALL LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDRICAL, PLAIN NOSE				
5/16"	3/4"	2-1/2"	10A8-W	22480
5/16"	1"	2-3/4"	10LA8-W	22481
3/8"	3/4"	2-1/2"	12A8-W	22482
3/8"	1"	2-3/4"	12LA8-W	22483
3/8"	1-1/2"	3-1/4"	12XA8-W	22484
7/16"	1"	2-3/4"	14A8-W	22485
1/2"	1"	2-3/4"	16A8-W	22486
5/8"	1"	2-3/4"	20A8-W	22487
3/4"	1/2"	2-1/4"	24GA8-W	22488
3/4"	3/4"	2-1/2"	24JA8-W	22489
3/4"	1"	2-3/4"	24A8-W	22490
7/8"	1"	2-3/4"	28A8-W	22492
1"	1"	2-3/4"	32A8-W	22494
CYLINDRICAL, END CUT				
5/16"	3/4"	2-1/2"	10A8-EC-W	22496
5/16"	1"	2-3/4"	10LA8-EC-W	22497
3/8"	3/4"	2-1/2"	12A8-EC-W	22498
3/8"	1"	2-3/4"	12LA8-EC-W	22499
3/8"	1-1/2"	3-1/4"	12XLA8-EC-W	22500
7/16"	1"	2-3/4"	14A8-EC-W	22501
1/2"	1"	2-3/4"	16A8-EC-W	22502
5/8"	1"	2-3/4"	20A8-EC-W	22503
3/4"	1/2"	2-1/4"	24GA8-EC-W	22504
3/4"	3/4"	2-1/2"	24JA8-EC-W	22505
3/4"	1"	2-3/4"	24A8-EC-W	22506
7/8"	1"	2-3/4"	28A8-EC-W	22508
1"	1"	2-3/4"	32A8-EC-W	22510

HEAD DIA.	FLUTE LENGTH	OVERALL LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
BALL				
5/16"	1/4"	2-1/32"	10B8-W	22512
3/8"	5/16"	2-3/32"	12B8-W	22513
7/16"	3/8"	2-9/64"	14B8-W	22514
1/2"	7/16"	2-13/64"	16B8-W	22515
5/8"	9/16"	2-5/16"	20B8-W	22516
3/4"	11/16"	2-7/16"	24B8-W	22517
1"	15/16"	2-43/64"	32B8-W	22519
CYLINDRICAL, ROUND NOSE				
5/16"	3/4"	2-1/2"	10C8-W	22521
5/16"	1"	2-3/4"	10LC8-W	22522
3/8"	3/4"	2-1/2"	12C8-W	22523
3/8"	1"	2-3/4"	12MC8-W	22524
3/8"	1-1/2"	3-1/4"	12LC8-W	22525
7/16"	1"	2-3/4"	14C8-W	22526
1/2"	1"	2-3/4"	16C8-W	22527
5/8"	1"	2-3/4"	20C8-W	22528
3/4"	1/2"	2-1/4"	24GC8-W	22529
3/4"	3/4"	2-1/2"	24MC8-W	22531
3/4"	1"	2-3/4"	24C8-W	22533
1"	1"	2-3/4"	32C8-W	22535
OLIVE				
3/8"	5/8"	2-3/8"	12Q8-W	22537
7/16"	1"	2-3/8"	14Q8-W	22538
1/2"	7/8"	2-3/8"	16KQ8-W	22539
1/2"	7/8"	2-3/4"	16Q8-W	22540
5/8"	1"	2-3/4"	20Q8-W	22541
3/4"	1"	2-3/4"	24Q8-W	22542
1"	1-3/8"	2-3/4"	32Q8-W	22544

Carbo Mills all have Double Cut teeth for fast stock removal.



12L8-W 10FL8-W 12T8-W 12R8-W 20F8-W 12N8-W-EC 16U8-W

Carbide

Carbo-Mills™

1/4" Hardened Steel Shanks

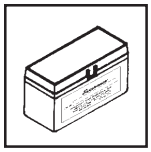
HEAD DIA.	FLUTE LENGTH	OVERALL LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
TREE, RADIUS NOSE				
3/8"	3/4"	2-1/2"	12R8-W	22546
7/16"	1"	2-3/4"	14R8-W	22547
1/2"	3/4"	2-1/2"	16JR8-W	22548
1/2"	1"	2-3/4"	16R8-W	22549
5/8"	1"	2-3/4"	20R8-W	22550
3/4"	1"	2-3/4"	24R8-W	22551
3/4"	1-1/4"	3"	24NR8-W	22553
3/4"	1-1/2"	3-1/4"	24PR8-W	22554
1"	1-3/8"	3-1/4"	32R8-W	22555
TREE, POINTED NOSE				
5/16"	3/4"	2-1/2"	10T8-W	22557
3/8"	3/4"	2-1/2"	12T8-W	22558
7/16"	1"	2-3/4"	14T8-W	22559
1/2"	3/4"	2-1/2"	16JT8-W	22560
1/2"	1"	2-3/4"	16T8-W	22561
5/8"	1"	2-3/4"	20T8-W	22562
3/4"	1"	2-3/4"	24T8-W	22563
3/4"	1-1/2"	3-1/4"	24PT8-W	22565
1"	1-3/8"	3-1/4"	32T8-W	22567
FLAME				
5/16"	3/4"	2-1/2"	10FL8-W	22569
1/2"	1-1/4"	3"	16FL8-W	22570
5/8"	1-7/16"	3-3/16"	20FL8-W	22571
3/4"	1-5/8"	3-3/8"	24FL8-W	22572

HEAD DIA.	FLUTE LENGTH	INCLUDED ANGLE	OVERALL LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CONE, RADIUS NOSE					
5/16"	7/8"	14°	2-3/4"	10L8-W	22574
3/8'	1-1/16"	14°	2-15/16"	12L8-W	22575
1/2"	1-1/8"	14°	3"	16L8-W	22576
5/8"	1"	14°	2-3/4"	20L8-W	22580
5/8"	1-3/16"	14°	3-1/16"	20SL8-W	22577
5/8"	1-5/16"	14°	3-3/16"	20LL8-W	22578
3/4"	1-1/2"	14°	3-3/8"	24L8-W	22579
CONE, POINTED NOSE					
3/8"	5/8"	28°	2-1/2"	12H8-W	22581
1/2"	7/8"	28°	2-3/4"	16H8-W	22582
5/8"	7/8"	36°	2-3/4"	20F8-W	22583
BACK TAPER, PLAIN END					
3/8"	3/8"	13°	2-1/8"	12N8-W	22584
1/2"	1/2"	28°	2-1/4"	16N8-W	22585
5/8"	3/4"	18°	2-1/2"	20N8-W	22586
3/4"	5/8"	30°	2-3/8"	24N8-W	22587
3/4"	3/4"	21°	2-1/2"	24JN8-W	22545
BACK TAPER, END CUT					
3/8"	3/8"	13°	2-1/8"	12N8-EC-W	22588
1/2"	1/2"	28°	2-1/4"	16N8-EC-W	22589
5/8"	3/4"	18°	2-1/2"	20N8-EC-W	22590
3/4"	5/8"	30°	2-3/8"	24N8-EC-W	22591
3/4"	3/4"	21°	2-1/2"	24JN8-EC-W	22592
CONCAVE					
1/2"	5/8"	5/16"	2-3/8"	16U8-W	22556

Carbide

SETS / Carbo-Mills™

1/4" Hardened Steel Shanks

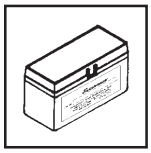


10 Piece set

SET #16-W	CARBO-MILLS	ORDER NUMBER	
		29575	

TOOLS INCLUDED ARE:

16A8-W	16C8-W	12R8-W	16T8-W
12B8-W	16H8-W	16R8-W	16U8-W
16B8-W	16Q8-W		



6 Piece set

SET #24-W	CARBO-MILLS	ORDER NUMBER	
		29576	

TOOLS INCLUDED ARE:

12A8-W	12C8-W	12L8-W	24R8-W
20A8-W	20C8-W		

Carbide

Di-Car Mills

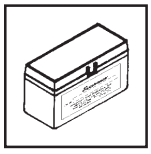
Di-Car mills are used in place of mounted grinding wheels to produce a fine finish on either soft or hard materials. They may be purchased individually or as an 8-piece Set No. 40W.

HEAD DIA.*	CUTTING LENGTH	SHAPE	TOOTH STYLE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/4"	5/8"	Cyl. flat end	Extra Fine Herringbone Cut	A-44-H-W	22150
1/2"	1"	Cyl. flat end	Extra Fine Double Cut	A-48-D-W	22151
1/4"	1/4"	Ball	Extra Fine Herringbone Cut	B-44-H-W	22152
1/4"	5/8"	Cyl. ball nose	Extra Fine Double Cut	C-44-D-W	22153
1/2"	1"	Cyl. ball nose	Extra Fine Herringbone Cut	C-48-H-W	22154
1/4"	3/8"	Taper, round nose	Extra Fine Herringbone Cut	H-44-H-W	22155
1/4"	1/2"	Tree, round nose	Extra Fine Double Cut	R-44-D-W	22156
1/2"	1"	Tree, round nose	Extra Fine Herringbone Cut	R-48-H-W	22157

* 1/2" tools have 1/4" alloy steel, hardened shanks; all 1/4" tools are solid carbide.

Carbide

SET #40-W / Di-Car Mills

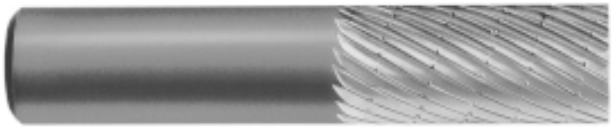


8 Piece set

SET #40-W	DI-CAR MILLS	ORDER NUMBER	
		29646	

TOOLS INCLUDED ARE:

A-44-H-W	B-44-H-W	C-48-H-W	R-44-D-W
A-48-D-W	C-44-D-W	H-44-H-W	R-48-H-W



CARBIDE
DIE MILLS

Die Mills are made with the shank and the cutting head of the same diameter. They are used extensively in template work, where the shank serves as a guide, and in other profiling operations. Die Mills may be reground many times for a long service life. When reground by Severance, a portion of the shank is reduced to match the new cutting diameter.

CUTTING DIA.	SHANK DIA.	HEAD LENGTH	FLUTE STYLE	OVERALL LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
1/8"	1/8"	1/2"	Double cut	1-1/2"	4A-DIE-W	17260
1/8"	1/8"	1/2"	Standard cut	1-1/2"	AGA-DIE-W	17262
5/32"	3/16"	1/2"	Double cut	2"	5A-DIE-W	17264
5/32"	3/16"	1/2"	Standard cut	2"	5GA-DIE-W	17266
3/16"	3/16"	3/4"	Double cut	2"	6A-DIE-W	17268
3/16"	3/16"	3/4"	Standard cut	2"	BJA-DIE-W	17270
1/4"	1/4"	3/4"	Double cut	2"	8A-DIE-W	17272
1/4"	1/4"	3/4"	Standard cut	2"	CJA-DIE-W	17274
5/16"	5/16"	13/16"	Double cut	2"	10A-DIE-W	17276
5/16"	5/16"	3/4"	Standard cut	2"	DJA-DIE-W	17278
3/8"	3/8"	1"	Double cut	2-1/2"	12A-DIE-W	17280
3/8"	3/8"	1"	Standard cut	2-1/2"	ELA-DIE-W	17282
7/16"	7/16"	1"	Double cut	2-1/2"	14A-DIE-W	17284
7/16"	7/16"	1"	Standard cut	2-1/2"	FLA-DIE-W	17286
1/2"	1/2"	1"	Double cut	2-1/2"	16A-DIE-W	17288
1/2"	1/2"	1"	Standard cut	2-1/2"	GLA-DIE-W	17290

See related items, pages 23 and 35.

HIGH SPEED STEEL
DIE MILLS

CUTTING DIA.	SHANK DIA.	HEAD LENGTH	OVERALL LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
3/32"	3/32"	1/4"	1-5/8"	3/32CA-DIE	17310
1/8"	1/8"	1/2"	1-5/8"	AGA-DIE	17312
1/8"	1/8"	1-1/2"	3"	APA-DIE	17314
3/16"	3/16"	3/4"	2"	BJA-DIE	17316
1/4"	1/4"	3/4"	2-1/4"	CJA-DIE	17318
5/16"	5/16"	3/4"	2-1/4"	DJA-DIE	17320
3/8"	3/8"	7/8"	2-1/4"	EKA-DIE	17322
7/16"	7/16"	7/8"	2-1/4"	FLA-DIE	17324
1/2"	1/2"	1"	2-1/2"	GLA-DIE	17326

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Carbide

Junior Mills®

1/8" Shank Diameter
1-5/8" Overall Length

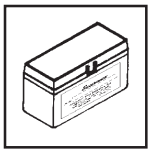
HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDRICAL, PLAIN END			
1/8"	1/2"	JR-14-W	22820
3/16"	5/8"	JR-1-W	22821
1/4"	1/2"	JR-2-W	22822
CYLINDRICAL, END CUTING			
1/8"	1/2"	JR-14-EC-W	22823
3/16"	5/8"	JR-1-EC-W	22824
1/4"	1/2"	JR-2-EC-W	22825
BALL			
1/8"	3/32"	JR-3-W	22826
3/16"	11/64"	JR-13-W	22827
1/4"	3/16"	JR-4-W	22828
CYL.ROUND NOSE			
1/8"	1/2"	JR-23-W	22829
3/16"	5/8"	JR-5-W	22830
1/4"	1/2"	JR-15-W	22831
OLIVE			
3/16"	3/8"	JR-7-W	22832
1/4"	1/2"	JR-17-W	22833
TREE, ROUND NOSE			
1/8"	5/16"	JR-8-W	22834

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
TREE, ROUND NOSE (CONTINUED)			
3/16"	3/8"	JR-9-W	22835
1/4"	1/2"	JR-18-W	22836
FLAME			
1/8"	11/64"	JR-21-W	22837
3/16"	3/8"	JR-10-W	22838
1/4"	1/2"	JR-19-W	22839
CONE, FORWARD ANGLE			
1/8"	13/32"	JR-22-W	22840
3/16"	5/8"	JR-6-W	22841
1/4"	1/2"	JR-16-W	22842
INVERTED CONE			
1/4"	1/4"	JR-12-W	22843
1/4"	1/4"	JR-12-EC-W	22844
WHEEL, CYLINDRICAL, PLAIN END			
3/8"	3/64"	JR-11-W	22845
WHEEL, CYLINDRICAL, END CUTTING			
3/8"	3/64"	JR-11-EC-W	22846
WHEEL, SIDE CUTTING, DOUBLE ANGLE			
1/4"	1/16"	JR-20-W	22847

• NOTE: SOLID CARBIDE, ALL OTHER TOOLS ARE BRAZED TO HARDENED ALLOY SHANKS

Carbide

SETS / Junior Mills®

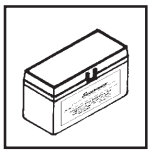


10 Piece set

SET #100-W	JUNIOR MILLS®	ORDER NUMBER
		29691

TOOLS INCLUDED ARE:

JR-1-W	JR-3-W	JR-5-W	JR-7-W	JR-9-W
JR-2-W	JR-4-W	JR-6-W	JR-8-W	JR-10-W

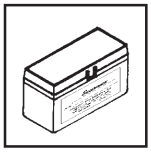


14 Piece set

SET #101-W	JUNIOR MILLS®	ORDER NUMBER
		29693

TOOLS INCLUDED ARE:

JR-1-W	JR-4-W	JR-7-W	JR-10-W	JR-13-W
JR-2-W	JR-5-W	JR-8-W	JR-11-W	JR-14-W
JR-3-W	JR-6-W	JR-9-W	JR-12-W	



20 Piece set

SET #102-W	JUNIOR MILLS®	ORDER NUMBER
		29695

TOOLS INCLUDED ARE:

JR-1-W	JR-5-W	JR-9-W	JR-13-W	JR-17-W
JR-2-W	JR-6-W	JR-10-W	JR-14-W	JR-18-W
JR-3-W	JR-7-W	JR-11-W	JR-15-W	JR-19-W
JR-4-W	JR-8-W	JR-12-W	JR-16-W	JR-20-W

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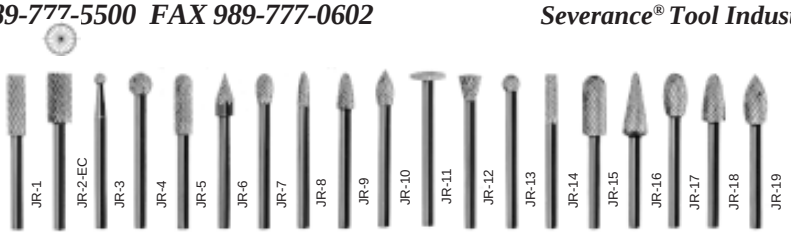


High Speed Steel Junior Mills®

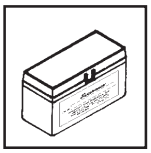
1/8" Shank Diameter 1-5/8" Overall Length

Junior Mills® are used to advantage over mounted grinding points, hand files, scrapers, etc. They retain their shape over long periods of use and can be reground to extend their service life. Junior Mills are recommended for cutting ferrous and non-ferrous metals, wood, plastics. Also available in carbide.

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
CYLINDRICAL, PLAIN END			
1/8"	1/2"	JR-14	22720
3/16"	5/8"	JR-1	22721
1/4"	1/2"	JR-2	22722
CYLINDRICAL, END CUTTING			
1/8"	1/2"	JR-14-EC	22723
3/16"	5/8"	JR-1-EC	22724
1/4"	1/2"	JR-2-EC	22725
BALL			
1/8"	3/32"	JR-3	22726
1/4"	3/16"	JR-4	22727
3/16"	11/64"	JR-13	22728
CYL.ROUND NOSE			
1/8"	1/2"	JR-23	22729
3/16"	5/8"	JR-5	22730
1/4"	1/2"	JR-15	22731
OLIVE			
3/16"	3/8"	JR-7	22732
1/4"	1/2"	JR-17	22733
TREE, ROUND NOSE			
1/8"	5/16"	JR-8	22734

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
TREE, ROUND NOSE (CONTINUED)			
3/16"	3/8"	JR-9	22735
1/4"	1/2"	JR-18	22736
FLAME			
1/8"	11/64"	JR-21	22737
3/16"	3/8"	JR-10	22738
1/4"	1/2"	JR-19	22739
CONE, FORWARD ANGLE			
1/8"	13/32"	JR-22	22740
3/16"	5/8"	JR-6	22741
1/4"	1/2"	JR-16	22742
INVERTED,CONE			
1/4"	1/4"	JR-12	22743
1/4"	1/4"	JR-12-EC	22744
WHEEL, CYLINDRICAL, PLAIN END			
3/8"	3/64"	JR-11	22745
WHEEL, CYLINDRICAL, END CUTTING			
3/8"	3/64"	JR-11-EC	22746
WHEEL, SIDE CUTTING, DOUBLE ANGLE			
1/4"	1/16"	JR-20	22747

High Speed Steel SETS / Junior Mills®

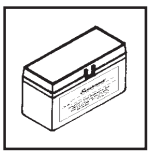


10 Piece set

SET #100	JUNIOR MILLS®	ORDER NUMBER
		29690

TOOLS INCLUDED ARE:

JR-1	JR-3	JR-5	JR-7	JR-9
JR-2	JR-4	JR-6	JR-8	JR-10

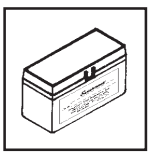


14 Piece set

SET #101	JUNIOR MILLS®	ORDER NUMBER
		29692

TOOLS INCLUDED ARE:

JR-1	JR-4	JR-7	JR-10	JR-13
JR-2	JR-5	JR-8	JR-11	JR-14
JR-3	JR-6	JR-9	JR-12	



20 Piece set

SET #102	JUNIOR MILLS®	ORDER NUMBER
		29694

TOOLS INCLUDED ARE:

JR-1	JR-5	JR-9	JR-13	JR-17
JR-2	JR-6	JR-10	JR-14	JR-18
JR-3	JR-7	JR-11	JR-15	JR-19
JR-4	JR-8	JR-12	JR-16	JR-20

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High Speed Steel
Lab Mills
3/32" Shank Diameter
1-5/8" Overall Length

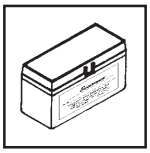
Lab Mills are made in nine shapes to accomplish almost any small milling operation. Each shape is offered in six different head diameters. Specify shape and diameter when ordering.

Set No. 60 (pictured) – 12 tools of selected shapes and sizes (3/32" and 3/16" diameters).

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
BALL SHAPE			
1/16"	3/64"	LM1-062	22620
3/32"	5/64"	LM1-093	22621
1/8"	3/32"	LM1-125	22622
3/16"	11/64"	LM1-187	22623
1/4"	3/16"	LM1-250	22624
5/16"	1/4"	LM1-312	22625
CONE POINTED NOSE 25° C/L ANGLE			
1/16"	.081	LM2-062	22626
3/32"	.122	LM2-093	22627
1/8"	.162	LM2-125	22628
3/16"	.244	LM2-187	22629
1/4"	.325	LM2-250	22630
5/16"	.407	LM2-312	22631
WHEEL (SAW)			
1/16"	.016	LM3-062	22632
3/32"	.019	LM3-093	22633
1/8"	.032	LM3-125	22634
3/16"	.046	LM3-187	22635
1/4"	.062	LM3-250	22636
5/16"	.078	LM3-312	22637
BUD SHAPE			
1/16"	.087	LM4-062	22638
3/32"	.130	LM4-093	22639
1/8"	.178	LM4-125	22640
3/16"	.261	LM4-187	22641
1/4"	.348	LM4-250	22642
5/16"	.435	LM4-312	22643
PEAR SHAPE			
1/16"	.100	LM5-062	22644
3/32"	.150	LM5-093	22645
1/8"	.206	LM5-125	22646

HEAD DIA.	HEAD LENGTH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
PEAR SHAPE (CONTINUED)			
3/16"	.300	LM5-187	22647
1/4"	.400	LM5-250	22648
5/16"	.500	LM5-312	22649
TREE, ROUND NOSE			
1/16"	1/8"	LM6-062	22650
3/32"	3/16"	LM6-093	22651
1/8"	1/4"	LM6-125	22652
3/16"	3/8"	LM6-187	22653
1/4"	1/2"	LM6-250	22654
5/16"	5/8"	LM6-312	22655
INVERTED CONE			
1/16"	1/16"	LM7-062	22656
3/32"	3/32"	LM7-093	22657
1/8"	1/8"	LM7-125	22658
3/16"	3/16"	LM7-187	22659
1/4"	1/4"	LM7-250	22660
5/16"	5/16"	LM7-312	22661
FLAME			
1/16"	.126	LM8-062	22662
3/32"	3/16"	LM8-093	22663
1/8"	.256	LM8-125	22664
3/16"	3/8"	LM8-187	22665
1/4"	1/2"	LM8-250	22666
5/16"	5/8"	LM8-312	22667
CYLINDER, PLAIN END			
1/16"	3/16"	LM9-062	22668
3/32"	9/32"	LM9-093	22669
1/8"	3/8"	LM9-125	22670
3/16"	9/16"	LM9-187	22671
1/4"	3/4"	LM9-250	22672
5/16"	11/16"	LM9-312	22673

High Speed Steel — SET#60 - Lab Mills



12 Piece set

SET #60	LAB MILLS	ORDER NUMBER	
TOOLS INCLUDED ARE:		29666	
LM1-093	LM2-187	LM4-187	LM7-093
LM1-187	LM3-187	LM5-093	LM8-093
LM2-093	LM4-093	LM6-093	LM9-093

3/32" SHANK
2-1/2" OVERALL

Severance rotary files are ideal for precision work at close tolerance.

See Page 88for sets

High Speed Steel
Extra Length Lab Mills

Known as: "Surgical Mills", or "Jordan Day™ Mills"

GROUP NOMENCLATURE	HEAD DIAMETER INCHES	MM	NO. OF TEETH	SEVERANCE TOOL NAME	EDP ORDER NUMBER
	.062	**1.6**	6	JD-0	34310
	.093	**2.4**	6	JD-1	34311
	.125	**3.2**	6	JD-2	34312
CUTTING	.156	**4.0**	6	JD-3	34313
MILLS	.187	**4.7**	6	JD-4	34314
	.156	**4.0**	8	JD-5	34315
	.187	**4.7**	8	JD-6	34316
	.218	**5.5**	8	JD-7	34317
	.250	**6.4**	8	JD-15	34318
	.281	**7.1**	8	JD-16	34319
PENETRATING MILLS	.125	**3.2**	8	JD-8	34320
PENETRATING DRILLS	.078	**2.0**	2	JD-25	34321
	.039	**1.0**	12	JD-9	34322
	.059	**1.5**	16	JD-10	34323
POLISHING MILLS	.078	**2.0**	18	JD-11	34324
	.090	**2.3**	20	JD-12	34325
	.118	**3.0**	20	JD-13	34326
	.156	**4.0**	25	JD-14	34327

High Speed Steel
Ball Nose Deburring Cutters
1/4" Shank Diameters

The **PLAIN** style is ideal for use in portable power tools for deburring holes as shown in the table. They produce approximately a 45° chamfer. When thrust into the hole at an angle, a large area of the Mill is useful and not just a narrow circle.

HEAD DIA.	TO FIT THIS HOLE SIZE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
PLAIN			
3/16"	1/8"	BBC	00240
1/4"	3/16"	CBC	00241
3/8"	1/4"	ECC	00242
1/2"	3/8"	GDC	00243
5/8"	7/16"	IEC	00244

The style **WITH GUIDE** is especially suited for deburring of oil holes in crankshafts because the guide on the end prevents the mill from slipping out of the hole and marring the bearing surface.

HEAD DIA.	TO FIT THIS HOLE SIZE	SEVERANCE TOOL NAME	EDP ORDER NUMBER
WITH GUIDE			
3/16"	1/8"	BBC-G	00245
1/4"	3/16"	CBC-G	00246
3/8"	1/4"	ECC-G	00247
1/2"	3/8"	GDC-G	00248
5/8"	7/16"	IEC-G	00249